



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
SUPPORTING AMENDMENT NO. 66 TO FACILITY OPERATING LICENSE NO. DPR-54

SACRAMENTO MUNICIPAL UTILITY DISTRICT  
RANCHO SECO NUCLEAR GENERATING STATION

DOCKET NO. 50-312

1.0 INTRODUCTION

By letters dated September 9, 1982 and December 28, 1984, the Sacramento Municipal Utility District (the licensee) requested an amendment to Facility Operating License No. DPR-54 for the Rancho Seco Nuclear Generating Station. The requested amendment would change the Technical Specifications (TSs) to add the surveillance of certain special interest steam generator tubes and visual inspections of the internal auxiliary feedwater distributor, attachment welds and thermal sleeves.

In April 1982, the steam generator (SG) internal auxiliary feedwater (AFW) headers at Davis-Besse 1 were discovered to be damaged. Accordingly, on April 19, 1982, inspections of the internal SG AFW headers were begun at the Rancho Seco facility (the facility was already shutdown for high pressure injection nozzle repairs). The internal headers were found to be in a condition similar to that found at Davis-Besse 1. The outer surface of the headers were concave and uneven, the header supports were deformed, and one header support pin in each SG was missing.

The licensee determined that the original design of the distributors was faulty and installed external headers with eight injection nozzles each to provide auxiliary feedwater distribution and retired the damaged internal distributors from service. The damaged distributors were stabilized and secured in place because the construction features of the steam generator made removal of the damaged distributors extremely difficult.

The NRC reviewed and evaluated the licensee's modifications to the steam generators, the method for stabilizing the retired distributors and the analyses prepared to substantiate the structural adequacy of the stabilized distributors. The Safety Evaluation presenting the conclusions of the NRC staff with regard to these and other considerations was issued by letter dated August 19, 1982.

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## 2.0 DISCUSSION AND EVALUATION

The original internal auxiliary feedwater flow distributor consisted of a flow channel, rectangular in cross-section, which completely encircled the steam generator tube bundle. The distributor is located at and is supported from the top of the steam shroud. Access to the internal flow distributor is limited. One 16-inch access port and one 6-inch nozzle were the only openings initially available through which to inspect the extent of damage. Fiberoptic devices and remotely operated video cameras were used to supplement the limited direct visual observation. Later, as part of the repair and modification, six small diameter holes were bored through the steam generator shell and steam shroud. These holes afforded additional inspection of the inner circumference of the flow distributor.

Several methods of inspection of critical areas were used and with the exception of the inner corner welds of the distributor, all critical areas related to the damaged distributor were examined. Only about 20% of the inner corner welds could be inspected. As stated in the August 19, 1982 Safety Evaluation, these inspections did not uncover any conditions that could cause degradation of the structural integrity of the distributor structure once it is securely fastened to the shroud. However, because of the extreme difficulty in conducting the inspections and the inability to totally inspect the damaged component, the NRC staff asked for and the licensee agreed to certain inservice inspections at the next two refueling outages and at each ten-year inservice inspection interval to confirm that no deterioration of the distributor structural welds or attachment welds had occurred and that the thermal sleeves had not developed cracks.

The licensee's proposed amendment would require visual inspections of the secured auxiliary feedwater flow distributor, the attachment welds to the shroud and the external header thermal sleeves on each steam generator. These inspections were conducted during the 1983 refueling outage and will be conducted during the 1985 refueling outage and at the ten-year inservice inspection interval. This proposed inspection is in conformance with the licensee's commitment to the NRC staff made at the time the staff was reviewing the steam generator repairs and modifications, and as referred to in our August 19, 1982 Safety Evaluation. We find that these inspections will permit verification that no gross degradation of the distributor or its attachment welds has occurred.

The inspections carried out by the licensee showed that the vertical wall of the header was distorted inwards towards the center of the steam generator, the support brackets were bent or damaged and some dowel pins were either out of position or missing. As a result of this distortion, the distance between some peripheral tubes and the header had been reduced. The licensee's repairs of the steam generators included recentering the internal flow distributors prior to securing them to the steam shrouds. However, because of distortion, the clearance between the distributors and some peripheral tubes is small. Therefore, to detect any potential adverse effects produced by interaction of the distributors upon the outer tubes, the licensee has also proposed an additional inspection to be performed on the steam generator selected for inservice inspection of tubes.

We find that this proposed inspection should provide additional assurance that no undue vibration or motion of the secured flow distributors is occurring and that there has been no impact, rubbing, or other interference with the outer tubes in the inspected region.

Based upon the above considerations, we find the licensee's proposed Technical Specification changes acceptable.

#### Environmental Consideration

This amendment changes inspection and surveillance requirements. We have determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that this amendment involves no significant hazards consideration and there has been no public comment on such finding. Accordingly, this amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of this amendment.

#### Conclusion

We have concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (2) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Dated: May 28, 1985

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